

emetizum non antea rejecerit, vel si alvus non laxata fuerit.

2. Translate the following expressions: (a) *Detrahatur e brachio sanguis ad uncias decem statim.* (b) *Sumat unum omni nocte ad vices octo ex aliquo vehiculo crasso.* (c) *Fiat emplastrum pollices sex longum, pollices tres latum.*

3. Write the following expressions without abbreviations and translate:

(a) *Ft. mist. cuj. det. coch. mag. om. bih.*

(b) *Coch. ampl. ij ex. semicy. vin. aq. apud hor. undec. a.m. et hor. quint. p.m. quotid. sum.*

(c) *Cap. coch. larg. dim. ex. coch. ij larg. aq. t. i. d.*

Translate the following prescriptions, criticize fully, and state how you would meet any difficulties which might arise in dispensing them as written:

4. R. Bismuthi subnitrat. .... 5j.  
Sodii bicarbonatis. .... gr. xxx.  
Excipientis q. s. ....  
Misce ft. pil. no. xx.  
Sig. Devoret egi, ij post jentac. prand. et coen. quotid. per mensem.

5. R. Acidi carbonici ..... 5.00  
Sodii bicarbonatis. .... 20.00  
Boraci. .... 30.00  
Glycerini. .... 150.00  
Aquam destillatam ad. 560.00

Misce S. A. ft. mist.  
Sig. Gargarisma. Ut. dict. man. merid. nocteque utend.

6. R. Trac. digitalis. .... f. 5j.  
Ext. erythroxyl. fl. ....  
Spt. atheris nitrosi .....  
Glycerini. .... ana f. 5j.  
Aque q. s. .... ft. f. 5iv.

M. Ft. mist. Exhibe coch. mag. bis quotid.  
7. R. Ext. colocynthidis comp. gr. iss.  
Pil. rhei compositae. .... gr. ij.  
Hydragryi cum creta. .... gr. iij.

Contund. ft. pil. et mit. tal. dos. no. duodec. quatum cap. j. sing. noct. h. s.

8. R. Acidi carbonici liq. .... 5.00  
Collodii flexilis. .... 55.00

M. ft. pigmentum. In verruca man. nocteque ope penicilli camelini applic.

9. R. Cocinae hydrochlor. gr. xlv.  
Sodii bicarbonatis. .... gr. viij.  
Aquam destillatam. ad f. 5ij.  
Solve ft. collyrium.

Applica ad oculum sinistrum ut dict. tertiis horis.

10. *Acidum Carbolicum:*

(a) Write dispensing notes on its exhibition in pill and mixture.

(b) State the proportions of water with which it gives transparent solution, and how similar results may be obtained with other proportions of water.

(c) Give its dose and antidotes.

#### BOTANY.

*Examiner:—T. McCRAE, B.A.*

1. Describe the structure of a growing point. Upon what conditions does growth depend?

2. Give an account of the reproduction of the Mosses.

3. What parts of the flower may form the fruit? Classify fruits with examples. Give an account of the methods of dispersal of fruits and seeds.

4. Describe the formation, structure, and functions of bark tissue.

5. Define the terms: bast, catkin, saprophyte, diclinous. Write short descrip-

tive notes on (a) pollen, (b) protoplasm, (c) tracheids, (d) trichomes.

6. Carbohydrates in plants. Give an account of their formation, and compare green and colorless plants in this regard.

7. Organized and unorganized ferments. Explain these terms with a description and comparison of the action of the two classes.

#### PRACTICAL PHARMACY.

*Examiner:—CHAS. F. HEBNER, PH.G., PHM.B.*

1. Prepare 56.7 c.m.<sup>3</sup> of syrup of iodide of iron by the following formula, submitting a report in accordance with the subjoined synopsis.

##### *Syrupus Ferri Iodidi.*

Iron wire.....	90.72 grams.
Iodine.....	178.225 "
Sugar.....	2480.625 "
Distilled water.....	1163.25 c.m. <sup>3</sup>

*Product..... 2835.000 c.m.<sup>3</sup>*

Make a syrup with sugar and 708.75 c.m.<sup>3</sup> distilled water. Use 566 c.m.<sup>3</sup> distilled water to make the solution of iron iodide, and when completed add syrup 177.25 c.m.<sup>3</sup> to it, and boil gently for five minutes. Filter the solution into the remainder of the hot syrup; wash residue and filter with 177.25 c.m.<sup>3</sup> hot distilled water, and resort to the proper expedient for preventing reduction of the iron salt in the finished preparation.

2. Find the specific gravity of the substance submitted, and report as per following synopsis:

Liquid labeled.....	
Specific gravity.....	

Work:

##### *Report for Syrup Iodide of Iron.*

Amount of each ingredient:

Iron wire.....	grams or.....grains.
Iodine.....	grams or.....grains.
Sugar.....	grams or.....grains.
Product.....	c.m. <sup>3</sup> or.....fl. ozs.
Water to make simple syrup.....	c.m. <sup>3</sup> or.....fl. drs.
Water to make iron iodide solution.....	c.m. <sup>3</sup> or.....fl. drs.
Syrup added to solution.....	c.m. <sup>3</sup> or.....fl. drs.
Hot water used to wash residue and filter.....	c.m. <sup>3</sup> or.....fl. drs.

(a) State how the iron iodide solution was made, and indicate reaction by an equation.

(b) Explain cause and manner of deterioration; and state how it may be prevented.

(c) What means were adopted to make the syrup permanent?

(d) Illustrate by chemical equation the action of the preservative agent used.

#### PHARMACY AND PHARMACEUTICAL CHEMISTRY.

*Examiner:—CHAS. F. HEBNER, PH.G., PHM.B.*

1. *Extractum Cinchonæ Liquidum.* (a) What are the official requirements as to strength? (b) Give method of assay. (c) State how you would standardize 1000

c.m.<sup>3</sup> of percolate which assay showed to contain 80 grams of total alkaloids.

2. Give name, strength, and dose of each of the official (a) powders containing opium; (b) solutions, (*liquores*) containing opium alkaloids.

3. Contrast the value of the following as ointment vehicles: (a) *Paraffinum Mollé*, (b) *Adeps Lanæ*, (c) *Adeps Benzoeatus*. (d) Mention the most satisfactory method of incorporating alkaloids with fats.

4. *Acidum Hydrobromicum Dilutum:* (a) Strength. (b) Criticize the official method of preparation. (c) What is Fothergill's method? (d) Show by equations the chemical changes involved in both processes.

5. *Extraction:* (a) Mention in order of occurrence the forces and phenomena exhibited during the process, (b) explaining how each assists in facilitating the exhaustion of drugs. (c) Define Extractive. (d) State what changes it undergoes physically and chemically by exposure to heat in contact with air. (e) Why are solid extracts so generally not soluble to a clear solution in menstrua identical with those used in their preparation?

6. Alkalies being considered general precipitants of alkaloidal salts: Explain (a) the ready solubility of quinine sulphate in aromatic spirit of ammonia, (b) the efficacy of *Tinctura Opii Ammoniata* and of (c) *Tinctura Quininae Ammoniata*.

7. Give official names for the following: (a) *Elixir Viriol.* (b) *Seignette Salt.* (c) *Hepar Sulphuris.* (d) *Sal de duobus.* (e) *Kermes Mineral.* (f) *Oil of Smoke.* (g) *Labarraque's solution.* (h) *Hoffmann's Anodyne.* (i) *Camphor Mixture.* (j) *Huxham's Tincture.*

8. *Incompatibility:* (a) Classify and (b) define, giving an example for each class. (c) Explain the cause of the difficulty usually experienced in dispensing saline substances in strong solution in most medicated waters.

9. *Fluid Extracts:* (a) Mention the conditions to be considered in selecting appropriate menstrua. (b) Explain the serious objections to the use of fluid extracts in preparing infusions, decoctions, syrups, tinctures, etc., by dilution, illustrating with two examples.

10. *Oils:* How do fixed and volatile oils differ (a) physically and (b) chemically? (c) What constituent furnishes the odor and flavor of volatile oils? (d) Mention the only exception to the rule. (e) Explain the cause of the variations in consistence of the different fixed oils. (f) How may cotton-seed oil be detected in olive oil? (g) How is Oil of Bitter Almond prepared, and how may it be purified of its poisonous constituent?

Vellosine is an alkaloid of pareira bark, recently isolated by Fauvet. It has the formula  $C_{17}H_{19}N_3O_5$ , and melts at 184°C. It appears as yellowish crystals, insoluble in water, but soluble in ether, chloroform, and hot alcohol.